

APPARATUS AND METHOD FOR REDUCING POWER CONSUMPTION IN PORTABLE TERMINAL

TECHNICAL FIELD

[0001] The present invention relates to an apparatus and method for reducing power consumption in a portable terminal. More particularly, the present invention relates to an apparatus and method for reducing power consumption generated in an idle state in order to solve a power consumption problem in a portable terminal.

BACKGROUND ART

[0002] Recently, with the rapid development of portable terminals, a mobile terminal providing wireless voice calls and data exchanges is regarded as personal necessity of life. Conventional portable terminals have generally been regarded as portable devices providing wireless calls. However, along with technical advances and introduction of the wireless Internet, portable terminals are now used for many purposes in addition to telephone calls. For example, the portable terminal provides a variety of functions to satisfy users' demands, such as, games, watching a satellite broadcasting program, remote controlling using near field communication, capturing images using a built-in digital camera, schedule management, and the like.

[0003] For the use of such a portable terminal, a longer time is required to use an additional function than a time of using wireless calls.

[0004] The development of batteries is not significant in comparison with the rapid development of the portable terminal. However, due to portability of the portable terminal, a required battery size is decreased, which results in the limitation of battery capacity.

[0005] In order to support more functions of the portable terminal with the limited battery capacity, power consumption of the portable terminal has to be reduced in addition to the increase of the battery capacity.

[0006] Among the functions of the portable terminal, battery consumption is great when listening to music, watching videos, operating a camera, emitting backlight, etc. Recently, portable terminals employ various sensors and functional modules for implementing a plurality of applications and functions. Accordingly, there is a problem in that power consumption is greater than a case of using the conventional terminals based on wireless communications.

[0007] In order to solve the aforementioned problem, the portable terminal intends to reduce power consumption by using the plurality of sensors included therein.

[0008] For example, the portable terminal uses the sensor to determine a time for using a Radio Frequency (RF) module so as to supply power at that time. Alternatively, the portable terminal escapes from an idle state at a time of determining a state in which the portable terminal will be used by a user such as an operation of gripping the portable terminal.

[0009] The portable terminal can reduce power consumption of the portable terminal. However, in order to determine a state of the portable terminal and a time for supplying power, the portable terminal has to obtain sensing information by periodically allowing a controller (i.e., an application processor) to wake up from an idle state.

[0010] That is, the aforementioned method has a problem in that power consumption occurs even in the idle state to perform a process of obtaining the sensing information to determine the state of the portable terminal and the time for supplying power.

DISCLOSURE OF INVENTION

Solution to Problem

[0011] An aspect of the present invention is to solve at least the above-mentioned problems and/or disadvantages and to provide at least the advantages described below. Accordingly, an aspect of the present invention is to provide an apparatus and method for solving a power consumption problem of a portable terminal.

[0012] Another aspect of the present invention is to provide an apparatus and method for reducing power consumption generated in an idle state of a portable terminal.

[0013] Another aspect of the present invention is to provide an apparatus and method for controlling operations of sensors to determine a state of a portable terminal when a portable terminal remains in an idle state.

[0014] Another aspect of the present invention is to provide an apparatus and method for determining a life pattern of a user of a portable terminal when the portable terminal remains in an idle state.

[0015] In accordance with an aspect of the present invention, an apparatus for reducing power consumption in a portable terminal is provided. The apparatus includes a state determination unit which is configured independently from an application processor for controlling applications and which wakes up when entering an idle mode to allow the application processor to sleep, and thereafter determines a state of the portable terminal, and if it is determined that the portable terminal escapes from the idle mode, allows the application processor to wake up.

[0016] In accordance with another aspect of the present invention, a method of reducing power consumption in a portable terminal is provided. The method includes determining a state of the portable terminal after allowing a state determination unit which is configured independently from an application processor for controlling applications to wake up when entering an idle mode and allowing the application processor to sleep, and if it is determined that the portable terminal escapes from the idle mode, allowing the application processor to wake up.

BRIEF DESCRIPTION OF DRAWINGS

[0017] The above and other aspects, features and advantages of certain exemplary embodiments of the present invention will be more apparent from the following detailed description taken in conjunction with the accompanying drawings, in which:

[0018] FIG. 1 is a block diagram illustrating a structure of a portable terminal for reducing power consumption according to an exemplary embodiment of the present invention;

[0019] FIG. 2 is a flowchart illustrating a process of waking up from an idle state in order to reduce power consumption in a portable terminal according to an exemplary embodiment of the present invention;